

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF GRAVES COUNTY WATER)
DISTRICT FOR AN ADJUSTMENT IN RATES) CASE NO.
PURSUANT TO THE ALTERNATIVE RATE) 2012-00278
FILING PROCEDURE FOR SMALL UTILITIES)

NOTICE OF FILING OF COMMISSION STAFF REPORT

Notice is hereby given that, in accordance with the Commission's Order of July 18, 2012, the attached report containing the findings and recommendations of Commission Staff regarding the Applicant's proposed rate adjustment has been filed in the record of the above-styled proceeding.



Jeff Derouen
Executive Director
Public Service Commission
P.O. Box 615
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DATED AUG 08 2012

cc: Parties of Record

STAFF REPORT
ON
GRAVES COUNTY WATER DISTRICT
CASE NO. 2012-00278

On June 28, 2012, Graves County Water District ("Graves District") filed an application with the Commission requesting a two-phase adjustment to its rates for water service. In Phase 1, rates would be adjusted in order to produce \$145,526 in additional annual revenues, an increase of 16.12 percent over pro forma present rate revenues from water sales of \$902,733. In Phase 2, the Phase 1 rates would be adjusted in order to produce an additional \$69,883 in annual revenues, a 6.67 percent increase over the annual revenues to be produced by Phase 1 rates.

The application was prepared with the assistance of Commission Staff ("Staff") pursuant to a written request from Graves District dated August 16, 2011. To prepare the application, a limited financial review was conducted of Graves District's test-year operations for the year ending December 31, 2010. Staff performed the review with assistance from Graves District's contracted operator, Mayfield Electric and Water Systems. The scope of the review was limited to determining whether operations reported for the test year were representative of normal operations. Known and measurable changes to test-year operations were identified and adjustments were made when their effects were deemed to be material. Insignificant or immaterial discrepancies were not pursued and were not addressed.

After completing the financial review, Staff assisted Graves District in preparing a cost-of-service study using rate-making methods and principles historically accepted by

the Commission. The rates requested by Graves District are supported by the cost-of-service study included with its application. The cost-of-service study is attached to this report and includes:

- 1) The calculation of pro forma operating revenues and pro forma operating expenses, Attachment A;
- 2) The calculation of the overall revenue requirement and required revenue increase, Attachment B;
- 3) The allocation of costs of service to cost components and the calculation of rates, Attachment C; and
- 4) The recommended rates, Attachment D.

Graves District was created in 2008 by the merger of South Graves Water District, Fancy Farm Water District, Hardeman Water District, and Consumers Water District. The Commission approved the merger by Order dated May 21, 2008.¹ As part of their merger agreement, the four water districts agreed that the merged water district would develop a unified rate design and submit the design to the Commission for approval.²

Phase 1 rates unify the rates of the predecessor districts and are designed, on a cost basis, to recover current operating costs necessary to provide safe and reliable potable water service to all customers. The unified rate was developed by allocating the cost of service to a five-step declining block rate design for retail customers. The rate

¹ Case No. 2007-00496, Joint Application of Consumers Water District, Fancy Farm Water District, Hardeman Water District, and South Graves Water District for Approval of Merger and Formation of Graves County Water District (Ky. PSC May 21, 2008).

² *Id.* at 7.

design has a customer charge with minimum usage that escalates for meters larger than 5/8-inch. Graves District also requests a single volumetric rate for its sole wholesale customer.

The table below shows the effects of the Phase 1 rates on the monthly bill of a residential customer using 5,000 gallons residing in each of the former district's service territories.

| | Bill at Current Rate | Bill at Phase 1 Rate | Increase/ (Decrease) | Percentage |
|--------------|----------------------------|----------------------------|-------------------------|------------|
| South Graves | \$ 34.86 | \$ 27.49 | \$ (7.37) | -21.14% |
| Hardeman | 21.35 | 27.49 | 6.14 | 28.76% |
| Fancy Farm | 23.15 | 27.49 | 4.34 | 18.75% |
| Consumers | 20.86 | 27.49 | 6.63 | 31.78% |

Graves District requests that Phase 2 rates become effective on the execution of a loan for \$1,000,000 from the Kentucky Infrastructure Authority ("KIA"). The proceeds from the loan will be used to finance a portion of the cost to install Automated Metering Infrastructure ("AMI").³

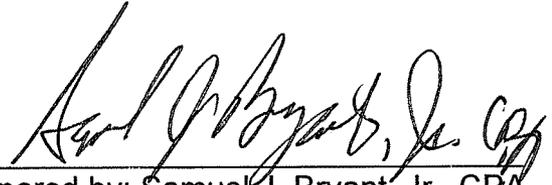
Phase 2 rates are necessary to produce revenue sufficient to repay the anticipated KIA loan and provide for recovery of depreciation on this portion of the AMI project. A monthly bill for 5,000 gallons would increase from \$27.49 to \$29.37, an increase of \$1.88 or 6.84 percent.

Staff members Samuel J. Bryant, Jr. and Sam Reid, Jr. performed the limited financial review of Graves District's test-year operations. This report summarizes Staff's review and recommendations. Mr. Bryant is responsible for Attachment A and Attachment B; Mr. Reid is responsible for Attachment C and Attachment D. As shown

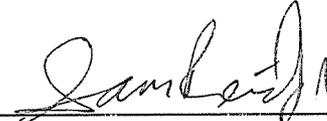
³ Case No. 2011-00390, Application of Graves County Water District for Authority to Enter Into a Loan Agreement with the Kentucky Infrastructure Authority (Ky. PSC Nov. 3, 2011).

in these attachments, Staff recommends that the Commission approve the rates in Phase 1 and Phase 2 as requested in Graves District's Application and included in Attachment D of this report.

Signatures



Prepared by: Samuel J. Bryant, Jr., CPA
Financial Analyst, Water and Sewer
Revenue Requirements Branch
Division of Financial Analysis



Prepared by: Sam Reid, Jr.
Rate Analyst, Communications, Water
and Sewer Rate Design Branch
Division of Financial Analysis

ATTACHMENT A
STAFF REPORT, CASE NO. 2012-00278

As shown in Table A1, adjustments to test-year revenues and test-year expenses were made to account for known and measurable changes that are applicable to Phase 1 operations. Adjustments to Phase 1 operations were then made that are applicable to Phase 2 operations. All adjustments are explained in the following table. Staff agrees with all of the adjustments and recommends that they be accepted by the Commission.

Table A1
Pro forma Operating Statement

| | Test Year December 31, 2010 | Phase 1 | | | Phase 2 | | |
|---|--------------------------------|------------------|------|--------------------|-------------------|------|------------------|
| | | Adjustments | Ref. | Pro forma | Adjustments | Ref. | Pro forma |
| Operating Revenue | | | | | | | |
| Water Sales | \$ 894,270 | \$ 8,463 | A | \$ 902,733 | \$ 145,526 | E | \$ 1,048,259 |
| Other Operating Revenue | 55,913 | | | 55,913 | | | 55,913 |
| Total Water Sales | 950,183 | 8,463 | | 958,646 | 145,526 | | 1,104,172 |
| Operating Expenses | | | | | | | |
| Operation and Maintenance | | | | | | | |
| Salaries and Wages - Officers | 15,750 | | | 15,750 | | | 15,750 |
| Purchased Water | 142,994 | (8,851) | B | 134,143 | | | 134,143 |
| Purchased Power | 65,813 | (4,074) | B | 61,739 | | | 61,739 |
| Chemicals | 65,880 | (4,078) | B | 61,802 | | | 61,802 |
| Materials and Supplies | 29,115 | | | 29,115 | | | 29,115 |
| Contractual Services | 486,994 | (4,848) | C | 482,146 | (35,016) | F | 447,130 |
| Rental of Equipment | 21,435 | | | 21,435 | | | 21,435 |
| Insurance General Liability | 11,056 | | | 11,056 | | | 11,056 |
| Bad Debt | 10,613 | | | 10,613 | | | 10,613 |
| Miscellaneous Expense | 9,667 | | | 9,667 | | | 9,667 |
| Total Operation and Maintenance | 859,317 | (21,851) | | 837,466 | (35,016) | | 802,450 |
| Depreciation Expense | 244,839 | (42,982) | D | 201,857 | 55,909 | G | 257,765 |
| Amortization | 1,475 | | | 1,475 | | | 1,475 |
| Total Operating Expenses | 1,105,631 | (64,833) | | 1,040,798 | 20,893 | | 1,061,690 |
| Net Operating Income | (155,448) | 73,296 | | (82,152) | 124,634 | | 42,482 |
| Interest and Dividend Income | 6,899 | | | 6,899 | | | 6,899 |
| Income Available to Service Debt | \$ (148,549) | \$ 73,296 | | \$ (75,253) | \$ 124,634 | | \$ 49,381 |

(A) Water Sales. Graves District reported test-year water sales in the amount of \$894,270. This amount was increased by \$8,463 to restate reported revenues

to the amount calculated in the billing analysis and to account for the addition of 10 new residential customers.

A billing analysis was performed to verify the amount of water sales reported for the test year. To complete the billing analysis, each customer's monthly bill for the test year was recalculated. The sum of the recalculated bills was compared to reported water sales. The billing analysis demonstrates that test-year water sales should have been reported at \$900,230. Accordingly, the test-year amount was increased by \$5,960.

Subsequent to the test year, Graves District added 10 new residential customers to its distribution system. It is appropriate to add the revenue collected from these customers to test-year water sales when calculating pro forma operations. To account for the additional revenue, test-year water sales were increased by \$2,503, or .28 percent ($\$2,503, \text{ new revenue} / \$894,270, \text{ test-year sales}$). The amount was calculated by applying Graves District's current residential rates to the average residential usage.

(B) Purchased Water, Purchased Power, and Chemicals. 807 KAR 5:066, Section 6(3), limits water loss for ratemaking purposes to 15 percent. The regulation allows for an alternative level if it is found to be reasonable. In its 2010 Annual Report, Graves District reported a 21.19 percent water loss, exceeding the allowable limit by 6.19 percent.

Graves District did not request that the Commission approve a level alternative to the 15 percent stated in the regulation. Instead, it proposed to remove 6.19 percent of the direct variable costs to purchase, treat, and deliver the excess water loss. Staff

agrees with the proposed adjustments to Purchased Water, Purchased Power, and Chemicals which are shown below.

| | | | |
|-----------------|---------|--------|---------|
| Purchased Water | 142,994 | -6.19% | (8,851) |
| Purchased Power | 65,813 | -6.19% | (4,074) |
| Chemicals | 65,880 | -6.19% | (4,078) |

Staff recognizes that an adjustment could be made to these three expense accounts to correspond with the customer growth revenue adjustment but did not recommend an adjustment. It is not material to Graves District's operations.

(C) Contractual Services. Graves District has no employees but contracts with Mayfield Electric and Water Systems ("MEWS") to operate and manage its water system. The amount charged against revenues during the test year for these services totaled \$486,994.

In Case No. 2011-00233,⁴ Graves District received a certificate of public convenience and necessity to install an AMI Project with a total cost of \$1,330,491.⁵ A portion of the project is to be funded with a \$1,000,000 loan from KIA.⁶

Prior to the issuance of the Order approving the construction and financing of the AMI project, Graves District completed a construction project that was separate from the AMI project. This project was funded by a KIA grant. The amount of the KIA grant unexpectedly exceeded the final cost of the project. Graves District received permission from KIA to use the excess funds to begin its AMI project. With this funding,

⁴ Case No. 2011-00233, Application of Graves County Water District for Approval of Construction and Issuance of a Certificate of Convenience and Necessity for the Purchase and Installation of Automated Meter Reading Equipment (Ky. PSC Nov. 3, 2011).

⁵ *Id.* Appendix A to the Order stated the estimated project cost as \$1,749,794. This amount included the portion of the AMI project for Graves and Hickory Water District. Graves District's portion of the projected costs is \$1,330,491.

⁶ Case No. 2011-00390, Application of Graves County Water District (Ky. PSC Nov. 3, 2011).

Graves District completed the installation of AMI assets for its 385 customers residing in the territory formerly served by Hardeman Water District. In Phase 1 rates, Graves District requests recovery of the cost of this portion of the AMI project through depreciation. These assets total \$212,319 and are included in the calculation of Phase 1 depreciation shown in Attachment G-2 of the Application. Accordingly, Graves District requests to adjust all other test-year expenses that will be affected by this portion of the AMI project in Phase 1.

The AMI project will likely produce savings; however, the only savings immediately identifiable are those related to meter reading. The meter reading savings are estimated to be \$1.05 per meter per month.⁷ Test-year contractual services were reduced by \$4,848 (\$1.05 savings per meter x 385 customers x 12 months) to account for these savings in Phase 1. Savings related to costs other than meter reading will only be identifiable after the AMI system has been in service for a reasonable length of time. The AMI project has not been in place long enough to identify and quantify other savings at this time. No other adjustments were made.

(D) Depreciation Expense. Graves District reported test-year depreciation expense of \$244,839. This amount was calculated using the remaining-life method. The calculation is shown in Attachment G-1 of the Application. As shown in Attachment G-2 of the Application, Graves District proposes to decrease the test-year amount by \$42,982 when calculating Phase 1 revenue requirements to account for:

1) A change from the remaining-life depreciation method to the whole-life depreciation method;

⁷ *Id.*, Findings 19 and 20.

- 2) New whole-life depreciable lives assigned to each asset account group;
- and
- 3) Depreciation taken on assets placed into service subsequent to the test year.

Change in Depreciation Methods. When the water districts merged to create Graves District, the assets of each district were reported at net book value, original cost less accumulated depreciation, as of August 31, 2008. This action represented a “write-down” of assets in excess of \$4.5 million, approximately 46 percent of the plant’s original cost. The journal entry of this recording was submitted to the Commission by letter dated September 8, 2008. After recording the assets at net book value, Graves District was of the opinion that it was required to adopt the remaining-life method to calculate annual depreciation expense. Prior to the merger, each predecessor district used the whole-life method.

After using the remaining life method for the two years subsequent to the merger, Graves District believes that the whole-life method is more appropriate for calculating its annual depreciation expense. Graves District requests that the Commission allow it to restate its assets, and related accumulated depreciation, to their original balances at the time of merger, with adjustments made for additions subsequent to the merger, and begin calculating depreciation using the whole-life method. This method was used in Attachment G-2 of the Application to calculate pro forma depreciation expense for Phase 1 and Phase 2 operations.

In support of its request, Graves District argued that Accounting Instruction 21 of the Uniform System of Accounts (“USoA”) was violated when it first recorded its assets

using net plant values. Accounting Instruction 21 requires the accounts for plant, accumulated depreciation, and donated capital reported by a merged utility be stated at the balances reported by the former utilities at the time of merger. This ensures that the requirements of Accounting Instruction 18 of the USoA are met. Accounting Instruction 18 requires that all assets be stated at their original cost when first devoted to public service. To adhere to the requirements of the USoA, Graves District must restate its balances for plant and accumulated depreciation, otherwise, these accounts will remain understated in future reporting periods by a material amount and the original cost principal will remain violated.

After restating its plant balances, it only seems fitting that Graves District be allowed to begin applying the whole-life depreciation method as was used prior to the merger. The whole-life method is far less cumbersome to apply than the remaining-life method and is a superior method for a "small" utility with a less sophisticated fixed asset accounting system when compared to a "large" utility which often has an accounting department dedicated solely to asset management practices.

For these reasons, Staff agrees that Graves District should be allowed to restate its assets to their original cost and to begin applying the whole-life method of depreciation as has been applied in Attachment G-2 of the Application.

Change to Depreciable Lives. Generally, the Commission requires a "large" utility to perform a depreciation study to determine the appropriate depreciable lives to be assigned to each plant account group. Detailed property records specific to historic plant additions, plant retirements, and salvage practices are required to complete a depreciation study. Generally, "small" water utilities, such as Graves District, do not

maintain property records with enough detail to properly complete a formal study. Even if adequate records were maintained, “small” utilities do not have the financial resources to fund a formal study. Therefore, to evaluate the reasonableness of the depreciation practices of small utilities, the Commission has historically relied upon the report published in 1979 by NARUC entitled *Depreciation Practices for Small Water Utilities* (“NARUC Study”).⁸

Graves District referred to the NARUC study to determine the appropriate depreciable whole-life to be assigned to each asset group except for the AMI project. Graves District selected lives for each group that are at, or near, the mid-point of the recommended ranges. The middle of the ranges is representative of the depreciation practices of an “average” small water utility. Graves District requested that the Commission approve the lives selected using the NARUC study.

The NARUC study is not applicable to the AMI components. The NARUC study was prepared long before this infrastructure was designed and developed. Relying on information obtain from the manufacturer of the AMI components, Graves District requested that a 20-year depreciable life be assigned to these assets.

Staff agrees with the lives assigned by Graves District and has made the necessary adjustment to test-year expenses to account for these lives.

Post Test-Year Plant Additions. As shown in Attachment G-2 of the Application, subsequent to the end of the test year, Graves District placed the additional plant into service with a total cost of \$933,027. These assets consist of \$655,777 for an interconnection with the city of Mayfield, \$157,414 for the AMI project in the Hardeman

⁸ See, e.g., Case No. 2006-00398, Application of Northern Kentucky Water District for Approval of Depreciation Study (Ky. PSC Nov. 21, 2007).

area, and \$119,836 for locating and mapping transmission and distribution mains. Depreciation of these assets should be included in the calculation revenue requirements in Phase 1. The adjustment to test-year depreciation expense for each item is discussed below.

In 2011, Graves District completed the construction of pumping and main facilities that were necessary to connect its transmission and distribution system to the water system of the city of Mayfield. This interconnection provides Graves District with an alternative source of finished water and was paid with KIA grant funds.

As discussed at Reference Item C in Table A1, Graves District completed installation of the AMI project in the area formerly served by Hardeman Water District in 2011. The total cost of this portion of the AMI project was \$212,319, \$54,905 was capitalized in 2010 while the remaining \$157,414 was capitalized in 2011. This asset has been depreciated using a 20-year life.

Subsequent to the test year, in years 2011 and 2012, Graves District incurred significant costs for mapping the location of its existing transmission and distribution mains. As of May 31, 2012, these costs totaled \$119,836. This amount has been capitalized and depreciated over the 65-year depreciable life assigned to mains.

(E) Water Sales. Phase 1 rates will produce additional annual revenues in the approximate amount of \$145,526. This additional revenue should be included in normalized revenues when calculating the required revenue increase for Phase 2.

(F) Contractual Services. The Phase 2 rates requested in the Application are necessary after accounting for all known and measurable changes to operating costs that will result from completion of the AMI project. As previously discussed in

Reference Item C in Table A1, in Phase 1 Contractual Services were reduced by \$4,848 to account for savings in meter reading expenses resulting from the installation of the AMI project in the Hardeman area. Following this principle, Contractual Services were reduced in Phase 2 by an additional \$35,016⁹ to account for the meter reading savings that will result from completion of the AMI project.

(G) Depreciation. In Phase 2, annual depreciation expense in the amount of \$66,525 for the entire estimated cost of the AMI project, \$1,330,491, has been included for recovery. Through the AMI project, Graves District will replace all of its mechanical meters. As previously discussed, the Commission has granted Graves District a certificate of public convenience and necessity to install AMI equipment. The manufacturer of the AMI meters estimates their life to be equal to 20 years. Based on this estimate, the AMI project has been depreciated over a 20-year period. As shown in Attachment G-2 of the Application, the additional depreciation adjustment required in Phase 2 is \$55,909. Depreciation in the amount of \$10,616 was included in the calculation of Phase 1 depreciation for the Hardeman area.

Graves District noted that, in addition to depreciating the AMI project in Attachment G-2, it also continues to depreciate the cost of the old mechanical meters even though they will be removed from service. Although this action violates Accounting Instruction 27 B(2) of the USoA, it is reasonable. It does not have a material effect on depreciation in the years immediately following the removal of the assets and has no effect on depreciation in the long term.

⁹ 3,164 total customers - 385 Hardeman Customers = 2,779 x \$1.05 x 12 months.

To explain, the cost of the mechanical meters is reported in the same account group as their installation costs. The total combined cost of the group is \$501,283 (annual depreciation totals \$10,616). There is no way to accurately separate the meter's cost to record their retirement.

Although the cost of meters cannot be accurately identified and separated, the majority of the cost of the account group is attributable to installations. This is evidenced by comparing the cost of a mechanical meter to the cost of installing a meter. The majority of Graves District's meters are 5/8-inch meters. The current average combined cost of a meter and meter installation is assumed to be equal to the current tap fee charged for a 5/8-inch connection, \$450. Of this amount, the cost of the mechanical meter is roughly \$35. The installation is then assumed to represent approximately \$415, or over 92 percent of the combined cost. Since the installations represent such a significant amount of the combined costs and will remain in service even after the mechanical meters are removed, it is appropriate and necessary to continue depreciation on this component of the asset group. Given the relatively small amount of the cost of meters in the asset group, their inclusion is of no material consequence to the annual depreciation expense.

Furthermore, this accounting treatment will result in the same amount charged to depreciation expense in the later years. If the cost of the meters could be separated and were accounted for in accordance with Accounting Instruction 27, a loss in the amount of the undepreciated balance of the meters would be reported. This loss would flow through the meter and meter installations accumulated depreciation account. This would increase the depreciable basis of the account group by an amount equal to the

loss. This loss would ultimately flow through to the income statement as a component of depreciation expense in future periods.

No matter which of the two accounting treatments is used, the “stranded cost” of the mechanical meters will be included in the calculation of future depreciation expense taken on the meter and meter installation account. The proposed method is of no material consequence in the immediate reporting periods or in the long term. It is therefore reasonable.

ATTACHMENT B

STAFF REPORT, CASE NO. 2012-00278

TABLE B1
 Determination of Overall Revenue Requirement
 and Required Revenue Increase

| | Phase 1 | Phase 2 |
|--|-------------------|--------------------|
| Operating Expenses, Refer to Attachment A | \$ 1,040,798 | \$ 1,061,690 |
| Three-Year Average Debt Service Payments, See Table B2 | <u>70,274</u> | <u>119,264</u> |
| Total Revenue Requirement | 1,111,071 | 1,180,954 |
| Less: Other Operating Revenue | (55,913) | (55,913) |
| Interest Income | <u>(6,899)</u> | <u>(6,899)</u> |
| Revenue Required from Rates | 1,048,259 | 1,118,142 |
| Less: Normalized Water Sales | <u>(902,733)</u> | <u>(1,048,259)</u> |
| Required Revenue Increase | <u>\$ 145,526</u> | <u>\$ 69,883</u> |
| Percentage Increase | <u>16.12%</u> | <u>6.67%</u> |

As shown in Table B1, Graves District's overall revenue requirement for Phase 1 is calculated to be \$1,111,071. The overall revenue requirement was determined by adding pro forma operating expenses to the three-year average principal and interest payments payable to KIA for Loan No. B05-04 and Loan No. B07-03. By reducing the overall revenue requirement by pro forma other revenues and interest income, the revenue required from rates was determined to be \$1,048,259. This represents an increase of \$145,526, or 16.12 percent, over normalized test-year water sales revenue of \$902,773.

All of the components of these calculations are shown and explained in Attachment A of this report except for the payments to KIA. The calculation of the debt payments are shown in Table B2 and are explained following the table. The rates shown in Attachment D, page 1, are the unified rates that were designed to meet the Phase 1 revenue requirement.

Also shown in Table B1 is the calculation of the overall revenue requirement for Phase 2 in the amount of \$1,180,954. This amount was determined by adjusting the Phase 1 revenue requirement for known and measurable changes that will result from the installation of the AMI project. This project could be completed as early as December 31, 2013. The most critical adjustment for this project is for the future debt payments to KIA for the loan to finance the project. The calculation of this adjustment is shown on Table B2. The remaining adjustments are shown and explained in Attachment A.

The first payment on the KIA loan will be due one year after the loan is closed. Therefore, Graves District requested that the Phase 2 rates, as shown in Attachment D, page 2, be made effective on the closing date of the loan. This will allow Graves District the opportunity to accumulate enough funds to make the first loan payment when it becomes due.

Table B2
Calculation of Three-Year Average Debt Payments

| <u>KIA Loan No.</u> | <u>Average Debt Payment</u> | |
|---|-----------------------------|-------------------|
| | <u>Phase 1</u> | <u>Phase 2</u> |
| B05-04, Calculation of Averages Shown Below | \$ 17,223 | \$ 17,223 |
| B07-03 | 53,051 | 53,051 |
| B11-02 | | 48,990 |
| Total | \$ 70,274 | \$ 119,264 |

| <u>Loan No. B05-04, See Amo. Sch. at Attachment H, Page 1 of App.</u> | | | | |
|---|------------------|-----------------|----------------------|------------------|
| <u>Year</u> | <u>Principal</u> | <u>Interest</u> | <u>Servicing Fee</u> | <u>Total</u> |
| 2012 | \$19,500 | \$ 1,379 | \$ 574 | \$ 21,453 |
| 2013 | 19,593 | 1,285 | 535 | 21,414 |
| 2014 | 19,688 | 1,391 | 496 | 21,575 |
| Three-Year Average | | | | \$ 21,480 |
| Percent Allocated to Water Division | | | | 80.18% |
| Three-Year Average Allocated to Water Division | | | | <u>\$ 17,223</u> |
| <u>Loan No. B07-03, See Amo. Sch. at Attachment H, Page 2 of App.</u> | | | | |
| <u>Year</u> | <u>Principal</u> | <u>Interest</u> | <u>Servicing Fee</u> | <u>Total</u> |
| 2012 | \$48,855 | \$ 2,863 | \$ 1,431 | \$ 53,149 |
| 2013 | 49,051 | 2,667 | 1,334 | 53,051 |
| 2014 | 49,247 | 2,471 | 1,235 | 52,953 |
| Three-Year Average | | | | <u>\$ 53,051</u> |
| <u>Loan No. B11-02, See Amo. Sch. at Attachment H, Page 3 of App.</u> | | | | |
| <u>Year</u> | <u>Principal</u> | <u>Interest</u> | <u>Servicing Fee</u> | <u>Total</u> |
| 1 | \$32,070 | \$15,440 | \$ 1,544 | \$ 49,055 |
| 2 | 32,715 | 14,796 | 1,480 | 48,990 |
| 3 | 33,372 | 14,138 | 1,414 | 48,925 |
| Three-Year Average | | | | <u>\$ 48,990</u> |

The debt service requested by Graves District for Phase 1 is equal to the three-year average principal and interest payments due to KIA on Loan No. B05-04 and Loan No. B07-03.

Loan B05-04 originated from Fancy Farm's former service area where Fancy Farm provided water service and sewer service. Immediately prior to its merger into Graves District, Fancy Farm had long-term bonds payable to the United States Department of Agriculture's Rural Development ("RD") in the total amount of \$690,896. The water division's portion was \$553,976, or 80.18 percent of the total. The sewer division's portion was \$136,920, or 19.82 percent of the total.¹⁰ Upon completion of the merger, Graves District refinanced the entire amount of the debt using grant funds and the proceeds from KIA Loan No. B05-04. The original KIA loan amount was \$596,776. In its Application, Graves District acknowledges that the Commission's approval to assume this loan was never sought by any parties of the merger.

Even though the Commission's approval of this loan was never obtained, the proceeds from the loan appear to have been used for lawful purposes. Staff recommends that the average principal and interest payments of the loan be included in the calculation of revenue requirements. The payments were split between the water and sewer divisions based on the percentage of the RD bonds outstanding at the time of refinancing. Therefore, the water division has been allocated 80.18 percent of the total debt service requirements for this loan.

¹⁰ See Case No. 2007-00496, Joint Application of Consumers Water District, Fancy Farm Water District, Hardeman Water District, and South Graves Water District (Ky. PSC May 21, 2008) at 3.

Loan No. B07-03 was secured by Graves District to refinance a KIA loan that had been originally awarded to South Graves Water District in 1994. This refinancing was approved by the Commission in Case No. 2008-00448.¹¹

To calculate the debt service requirement for Phase 2, Graves District added to the Phase 1 requirement, the anticipated three-year average principal, and interest payments on Loan No. B11-02. The approved loan amount is \$1,000,000 with principal forgiveness from KIA of 20 percent. This loan has not yet been closed. It is expected to be closed on, or around, December 31, 2013, the anticipated completion date of the AMI project. The principal and interest payment included for this loan were taken from the loan amortization schedule provided by KIA on September 7, 2011.

It should be noted that there is no provision for a Debt Service Coverage (“DSC”) in the calculations shown in Table B1 or Table B2. KIA only requires its borrowers to maintain a DSC when its loans are subordinate to long-term indebtedness owed by its borrower to other funding agencies. Since Graves District has no other long-term indebtedness, the KIA loans are not subordinate and, therefore, require no DSC.

¹¹ Case No. 2008-00448, Application of Graves County Water District for Approval of Financing (Ky. PSC Jan. 5, 2009).

ATTACHMENT C
STAFF REPORT, CASE NO. 2012-00278

Allocation of costs of service. On pages 10-16 of this attachment, the allocation of allowable costs as determined by the pro forma revenue requirement for Phase 1 were made using methods historically accepted by the Commission to design uniform retail rates and a wholesale rate. The allocation of allowable costs as determined by the pro forma revenue requirement for Phase 2 rates appear on pages 21-25 of this attachment. The wholesale rate was first calculated by increasing the current wholesale rate by the percentage of the required revenue increase. The increase in revenue resulting from the new wholesale rate was then used to reduce the total revenue requirement. The remaining revenue requirement was allocated to the retail customers. Commodity costs and demand costs were allocated between the wholesale customer and retail customers. The amounts allocated to the retail customers were considered when formulating the retail rate design.

Rate Design. Graves District's proposed rate design is a five step declining block rate design. Retail customers are classified by meter size with minimum required usage levels and minimum bills. A volumetric rate is proposed for Graves District's wholesale customer. The proposed rate design for the merged district will promote fairness and equity to the utility's various classifications of customers, while recovering the costs associated with providing service to those various classes of customer. The Commission has historically accepted declining block rate designs as a fair and reasonable rate structure to reflect differences in water and capacity use of different classes of customers. The proposed unified rates will produce sufficient revenues to recover the allowable expenses determined when establishing the revenue requirement,

while providing reasonable equity between customer classes by considering the demand characteristics of each class.

Billing Analysis. As shown on pages 26-29 of this attachment, a billing analysis was used to verify that the proposed uniform rates will produce revenues sufficient to meet the revenue requirement. The proposed rates were applied to the test-year monthly usages of each customer.

To test the accuracy and completeness of the monthly usages included in the billing analysis, Graves District applied the rates in effect in each of the four former districts during the test year to the usages in the billing analysis. The results were compared to the test-year reported revenues. Each area's billing analysis, with the rates in effect during the test year, is shown in the foregoing tables. There were no material differences in the reported revenues and the recalculated revenues. This provides sufficient evidence that the usages included in the billing analysis are accurate.

Normalized Billing Analysis for: GRAVES COUNTY WATER DISTRICT
 Test Period From: DECEMBER 1 - JANUARY 31, 2010

CURRENT RATES SUMMARY

| Meter Size | Bills | Gallons Sold | Revenue |
|-------------------|--------------|---------------------|----------------|
| Consumers | | | |
| 5/8 inch | 20,536 | 95,634,700 | \$418,964.44 |
| 1 inch | 160 | 2,603,900 | 9,735.16 |
| 2 inch | 53 | 1,360,800 | 4,984.52 |
| Fancy Farm | 5,222 | 26,025,400 | 122,473.65 |
| Wholesale | 12 | 8,259,300 | 17,922.68 |
| Hardeman | 4,620 | 22,102,700 | 94,356.86 |
| South Graves | 7,801 | 31,550,200 | 234,295.18 |
| Totals | 38,404 | 187,537,000 | \$902,732.49 |

CONSUMERS AREA OF GRAVES COUNTY WATER DISTRICT

Meter
Size: 5/8 inch

| | USAGE | BILLS | GALLONS | FIRST 20 | NEXT 80 | NEXT 100 | NEXT 300 | OVER 500 | TOTAL |
|--------|---------------|--------|------------|-------------|------------|-------------|-------------|-------------|------------|
| FIRST | 20 | 4,807 | 46,955 | 46,955 | | | | | 46,955 |
| NEXT | 80 | 14,388 | 682,026 | 287,760 | 394,266 | | | | 682,026 |
| NEXT | 100 | 1,092 | 142,289 | 21,840 | 87,360 | 33,089 | | | 142,289 |
| NEXT | 300 | 223 | 62,685 | 4,460 | 17,840 | 22,300 | 18,085 | | 62,685 |
| OVER | 500 | 26 | 22,392 | 520 | 2,080 | 2,600 | 7,800 | 9,392 | 22,392 |
| TOTALS | Gallons x 100 | 20,536 | 95,634,700 | 36,153,500 | 50,154,600 | 5,798,900 | 2,588,500 | 939,200 | 95,634,700 |

CONSUMERS AREA OF GRAVES COUNTY WATER DISTRICT
REVENUE BY RATE INCREMENT

| | | BILLS | GALLONS | RATE | REVENUE |
|-------|--------|--------|------------|---------|--------------|
| FIRST | 2,000 | 20,536 | 36,153,500 | \$12.01 | \$246,637.36 |
| NEXT | 8,000 | | 50,154,600 | 2.95 | 147,956.07 |
| NEXT | 10,000 | | 5,798,900 | 2.73 | 15,831.00 |
| NEXT | 30,000 | | 2,588,500 | 2.53 | 6,548.91 |
| OVER | 50,000 | | 939,200 | 2.12 | 1,991.10 |
| TOTAL | | 20,536 | 95,634,700 | | \$418,964.44 |

CONSUMERS AREA OF GRAVES COUNTY WATER DISTRICT

Meter Size: 1 inch

| | USAGE | BILLS | GALLONS | FIRST 100 | NEXT 100 | NEXT 300 | OVER 500 | TOTAL |
|--------|---------------|-------|-----------|--------------|-------------|-------------|-------------|-----------|
| FIRST | 100 | 101 | 3,609 | 3,609 | | | | 3,609 |
| NEXT | 100 | 30 | 3,794 | 3,000 | 794 | | | 3,794 |
| NEXT | 300 | 7 | 2,309 | 700 | 700 | 909 | | 2,309 |
| OVER | 500 | 22 | 16,327 | 2,200 | 2,200 | 6,600 | 5,327 | 16,327 |
| TOTALS | Gallons x 100 | 160 | 2,603,900 | 950,900 | 369,400 | 750,900 | 532,700 | 2,603,900 |

CONSUMERS AREA OF GRAVES COUNTY WATER DISTRICT
REVENUE BY RATE INCREMENT

| | | BILLS | GALLONS | RATE | REVENUE |
|-------|--------|-------|-----------|---------|------------|
| FIRST | 10,000 | 160 | 950,900 | \$35.61 | \$5,697.60 |
| NEXT | 10,000 | | 369,400 | 2.73 | 1,008.46 |
| NEXT | 30,000 | | 750,900 | 2.53 | 1,899.78 |
| OVER | 50,000 | | 532,700 | 2.12 | 1,129.32 |
| TOTAL | | 160 | 2,603,900 | | \$9,735.16 |

CONSUMERS AREA OF GRAVES COUNTY WATER DISTRICT

Meter Size: 2 inch

| | USAGE | BILLS | GALLONS | FIRST 200 | NEXT 300 | NEXT 500 | TOTAL |
|--------|---------------|-------|-----------|--------------|-------------|-------------|-----------|
| FIRST | 200 | 30 | 2,149 | 2,149 | | | 2,149 |
| NEXT | 300 | 18 | 6,885 | 3,600 | 3,285 | | 6,885 |
| OVER | 500 | 5 | 4,574 | 1,000 | 1,500 | 2,074 | 4,574 |
| TOTALS | Gallons x 100 | 53 | 1,360,800 | 674,900 | 478,500 | 207,400 | 1,360,800 |

CONSUMERS AREA OF GRAVES COUNTY WATER DISTRICT
REVENUE BY RATE INCREMENT

| | | BILLS | GALLONS | RATE | REVENUE |
|-------|--------|-------|-----------|---------|------------|
| FIRST | 20,000 | 53 | 674,900 | \$62.91 | \$3,334.23 |
| NEXT | 30,000 | | 478,500 | 2.53 | 1,210.61 |
| OVER | 50,000 | | 207,400 | 2.12 | 439.69 |
| TOTAL | | 53 | 1,360,800 | | \$4,984.52 |

FANCY FARM AREA OF GRAVES COUNTY WATER DISTRICT

Meter Size: Fancy Farm

| | USAGE | BILLS | GALLONS | FIRST 20 | NEXT 30 | NEXT 50 | NEXT 100 | OVER 200 | TOTAL |
|--------|---------------|-------|------------|-------------|------------|------------|-------------|-------------|------------|
| FIRST | 20 | 1,185 | 10,610 | 10,610 | | | | | 10,610 |
| NEXT | 30 | 2,221 | 77,821 | 44,420 | 33,401 | | | | 77,821 |
| NEXT | 50 | 1,390 | 94,332 | 27,800 | 41,700 | 24,832 | | | 94,332 |
| NEXT | 100 | 339 | 44,299 | 6,780 | 10,170 | 16,950 | 10,399 | | 44,299 |
| OVER | 200 | 87 | 33,192 | 1,740 | 2,610 | 4,350 | 8,700 | 15,792 | 33,192 |
| TOTALS | Gallons x 100 | 5,222 | 26,025,400 | 9,135,000 | 8,788,100 | 4,613,200 | 1,909,900 | 1,579,200 | 26,025,400 |

FANCY FARM AREA OF GRAVES COUNTY WATER DISTRICT
REVENUE BY RATE INCREMENT

| | | BILLS | GALLONS | per 1,000 gallon RATE | REVENUE |
|--------------|--------|-------|------------|--------------------------|--------------|
| FIRST | 2,000 | 5,222 | 9,135,000 | \$13.10 | \$68,408.20 |
| NEXT | 3,000 | | 8,788,100 | 3.35 | 29,440.14 |
| NEXT | 5,000 | | 4,613,200 | 3.18 | 14,669.98 |
| NEXT | 10,000 | | 1,909,900 | 2.98 | 5,691.50 |
| OVER | 20,000 | | 1,579,200 | 2.70 | 4,263.84 |
| Total Retail | | 5,222 | 26,025,400 | | \$122,473.65 |
| Wholesale | | 12 | 8,259,300 | 2.17 | 17,922.68 |
| TOTAL | | 5,234 | 34,284,700 | | \$140,396.33 |

HARDEMAN AREA OF GRAVES COUNTY WATER DISTRICT

Meter Size: Hardeman

| | USAGE | BILLS | GALLONS | FIRST 20 | NEXT 30 | NEXT 150 | OVER 200 | TOTAL |
|--------|---------------|-------|------------|-------------|------------|-------------|-------------|------------|
| FIRST | 20 | 1264 | 12,575 | 12,575 | | | | 12,575 |
| NEXT | 30 | 1940 | 65,890 | 38,800 | 27,090 | | | 65,890 |
| NEXT | 150 | 1329 | 109,211 | 26,580 | 39,870 | 42,761 | | 109,211 |
| OVER | 200 | 87 | 33,351 | 1,740 | 2,610 | 13,050 | 15,951 | 33,351 |
| TOTALS | Gallons x 100 | 4,620 | 22,102,700 | 7,969,500 | 6,957,000 | 5,581,100 | 1,595,100 | 22,102,700 |

HARDEMAN AREA OF GRAVES COUNTY WATER DISTRICT
REVENUE BY RATE INCREMENT

| | | BILLS | GALLONS | RATE | REVENUE |
|-------|--------|-------|------------|---------|-------------|
| FIRST | 2,000 | 4,620 | 7,969,500 | \$13.10 | \$60,522.00 |
| NEXT | 3,000 | | 6,957,000 | 2.75 | 19,131.75 |
| NEXT | 15,000 | | 5,581,100 | 2.12 | 11,831.93 |
| OVER | 20,000 | | 1,595,100 | 1.80 | 2,871.18 |
| TOTAL | | 4,620 | 22,102,700 | | \$94,356.86 |

SOUTH GRAVES AREA OF GRAVES COUNTY WATER DISTRICT

Meter
Size: South Graves

| | USAGE | BILLS | GALLONS | FIRST 20 | NEXT 30 | NEXT 50 | NEXT 100 | NEXT 300 | NEXT 500 | Over 1000 | TOTAL |
|--------|---------------|-------|------------|-------------|------------|------------|-------------|-------------|-------------|--------------|------------|
| FIRST | 20 | 2,487 | 23,267 | 23,267 | | | | | | | 23,267 |
| NEXT | 30 | 3,294 | 113,756 | 65,880 | 47,876 | | | | | | 113,756 |
| NEXT | 50 | 1,649 | 112,074 | 32,980 | 49,470 | 29,624 | | | | | 112,074 |
| NEXT | 100 | 301 | 39,246 | 6,020 | 9,030 | 15,050 | 9,146 | | | | 39,246 |
| NEXT | 300 | 65 | 16,327 | 1,300 | 1,950 | 3,250 | 6,500 | 3,327 | | | 16,327 |
| NEXT | 500 | 5 | 3,341 | 100 | 150 | 250 | 500 | 1,500 | 841 | | 3,341 |
| OVER | 1,000 | 3 | 7,491 | 60 | 90 | 150 | 300 | 900 | 1,500 | 4,491 | 7,491 |
| TOTALS | Gallons x 100 | 7,801 | 31,550,200 | 12,960,700 | 10,856,600 | 4,832,400 | 1,644,600 | 572,700 | 234,100 | 449,100 | 31,550,200 |

REVENUE BY RATE
INCREMENT

| | | BILLS | GALLONS | RATE | REVENUE |
|-------|---------|-------|------------|---------|--------------|
| FIRST | 2,000 | 7,801 | 12,960,700 | \$14.25 | \$111,164.25 |
| NEXT | 3,000 | | 10,856,600 | 6.87 | 74,584.84 |
| NEXT | 5,000 | | 4,832,400 | 6.62 | 31,990.49 |
| NEXT | 10,000 | | 1,644,600 | 6.38 | 10,492.55 |
| NEXT | 30,000 | | 572,700 | 5.89 | 3,373.20 |
| NEXT | 50,000 | | 234,100 | 4.91 | 1,149.43 |
| OVER | 100,000 | | 449,100 | 3.43 | 1,540.41 |
| TOTAL | | 7,801 | 31,550,200 | | \$234,295.18 |

COST OF SERVICE STUDY
GRAVES COUNTY WATER DISTRICT
ALLOCATION OF PLANT VALUE

PHASE 1

| | TOTAL | COMMODITY | DEMAND | CUSTOMER |
|-----------------------------------|--------------------|------------------|--------------------|------------------|
| Water Treatment Equipment | \$188,425 | | \$188,425 | |
| Land & Land Rights | 25,015 | | 25,015 | |
| Structures and Improvements | 146,582 | | 146,582 | |
| Pumping Equipment | 915,047 | | 915,047 | |
| Wells and Springs | 1,400,000 | | 1,400,000 | |
| Transmission & Distribution Mains | 2,414,274 | | 2,414,274 | |
| Power Operated Equipment | 7,172 | | 7,172 | |
| Meters & Meter Installations | 471,321 | | | 471,321 |
| Services | | | | 0 |
| SUBTOTAL | \$5,567,836 | \$0 | \$5,096,515 | \$471,321 |
| PERCENT | 100.00% | | 91.53% | 8.47% |
| General Plant (1) | | | | |
| Transportation Equipment | | | 0 | 0 |
| Office Furniture & Equipment | | | 0 | 0 |
| Other Plant and Misc. Equipment | 145 | | 133 | 12 |
| TOTAL VALUE | \$5,567,981 | \$0 | \$5,096,648 | \$471,333 |

(1) General Plant allocated based on overall weighted allocation of all other plant.
Note: Figures used were derived from 2010 annual report

GRAVES COUNTY WATER DISTRICT
ALLOCATION OF DEPRECIATION EXPENSE

| | PHASE 1 | | | |
|--------------------------------------|-----------|-----------|-----------|----------|
| | TOTAL | COMMODITY | DEMAND | CUSTOMER |
| Structures and Improvements | \$58,514 | | \$58,514 | |
| Pumping Equipment | 60,433 | | 60,433 | |
| Collecting and Impounding Reservoirs | 2,731 | | 2,731 | |
| Wells and Springs | 37,004 | | 37,004 | |
| Meters & Meter Installations | 45,186 | | | \$45,186 |
| Water Treatment Equipment | 83,183 | | 83,183 | |
| Services | 2,336 | | | 2,336 |
| Transmission & Distribution Mains | 251,543 | | 251,543 | |
| TOTAL DEPRECIATION | \$540,930 | \$0.00 | \$493,408 | \$47,522 |
| PERCENT | 100.00% | | 91.21% | 8.79% |

Note: Figures used were derived from 2010 annual report

GRAVES COUNTY WATER DISTRICT

ALLOCATION OF OPERATION AND MAINTENANCE EXPENSE

| | PHASE 1 | | | |
|-----------------------------------|-----------------|----------------|----------------|----------------|
| | TOTAL | COMMODITY | DEMAND | CUSTOMER |
| Contractual services - Labor | 294,070 | | 294,070 | |
| Contractual Services- Adm. Fee | 146,846 | | | 146,846 |
| Purchased Water | 134,143 | 134,143 | | |
| Purchased Power | 61,739 | 61,739 | | |
| Chemicals | 61,802 | 61,802 | | |
| Bad Debt Expense | 10,613 | | | 10,613 |
| SUBTOTAL | 709,213 | 257,684 | 294,070 | 157,459 |
| LESS COMMODITY | -257,684 | | | |
| SUBTOTAL | 451,529 | | 294,070 | 157,459 |
| PERCENT | 100.00% | | 65.13% | 34.87% |
| Employee Salaries - Commissioners | 15,750 | | 10,258 | 5,492 |
| Amortization Expense | 1,475 | | 961 | 514 |
| Equipment Rental | 21,435 | | 13,960 | 7,475 |
| Contractual Services- Eng. | 26,833 | | 17,476 | 9,357 |
| Contractual Services - Materials | 14,397 | | 9,376 | 5,021 |
| Materials & Supplies | 29,115 | | 18,962 | 10,153 |
| Insurance General Liability | 11,056 | | 7,201 | 3,855 |
| Miscellaneous Expense | 9,667 | | 6,296 | 3,371 |
| TOTAL | 838,941 | 257,684 | 378,559 | 202,698 |

GRAVES COUNTY WATER DISTRICT

SUMMARY OF ALLOCATIONS

PHASE 1

| | TOTAL | COMMODITY | DEMAND | CUSTOMER |
|--|-----------------------|---------------------|---------------------|---------------------|
| Plant Percentages | 100.00% | | 91.53% | 8.47% |
| Debt Service Payments | \$70,274 | | \$64,325 | \$5,949 |
| Depreciation Percentages | 100.00% | | 91.21% | 8.79% |
| Total Depreciation | 201,857 | | 184,123 | 17,734 |
| Total Operation & Maintenance | 838,941 | \$257,684.00 | 378,559 | 202,698 |
| Total Revenue Requirement | 1,111,072.00 | 257,684.00 | 627,007.37 | 226,380.63 |
| | | | | -6,899.00 |
| | | | | -55,913.00 |
| Revenue Requirement from retail water sales | \$1,048,260.00 | \$257,684.00 | \$627,007.37 | \$163,568.63 |

GRAVES COUNTY WATER DISTRICT

CALCULATION OF WHOLESALE RATE

| Wholesale | Gallons Sold | Rate per 1,000 | Revenue |
|------------------------------|--------------|-------------------|-------------|
| | 8,259,300 | \$2.17 | \$17,922.68 |
| Revenue Requirement Increase | | 16.12% | |
| | 8,259,300 | \$2.52 | \$20,813.44 |

GRAVES COUNTY WATER DISTRICT

SUMMARY OF ALLOCATIONS FOR RETAIL CUSTOMERS

PHASE 1

| | TOTAL | COMMODITY | DEMAND | CUSTOMER |
|--|--|------------------|------------------|------------------|
| Plant Percentages | 100.00% | | 91.53% | 8.47% |
| Debt Service Payment | \$70,274 | | \$64,325 | \$5,949 |
| Depreciation Percentages | 100.00% | | 91.21% | 8.79% |
| Total Depreciation | 201,857 | | 184,123 | 17,734 |
| Total Operation & Maintenance | 838,941 | 257,684 | 378,559 | 202,698 |
| Total Revenue Requirement | 1,111,072 | 257,684 | 627,007 | 226,381 |
| | | | | |
| | <i>Less: Other Income</i> | | | -6,899 |
| | <i>Less: Other Operating Revenue</i> | | | -55,913 |
| | <i>Less: Revenue from Wholesale Customer</i> | -20,813 | -6,063 | -14,750 |
| Revenue Requirement from retail water sales | \$1,027,447 | \$251,621 | \$612,257 | \$163,569 |

NOTES:

Wholesale Customer Revenues allocated based on percentage of the total of the Commodity and Demand components.

GRAVES COUNTY WATER DISTRICT
CALCULATION OF RETAIL WATER RATES

| | PHASE 1 | | | | | |
|-------------------------------|-----------------------|---------------------|---------------------|--------------------|--------------------|--------------------|
| | TOTAL | FIRST 2,000 | NEXT 8,000 | NEXT 10,000 | NEXT 30,000 | OVER 50,000 |
| FROM BILLING ANALYSIS: | | | | | | |
| COMMODITY PERCENTS | 100.00% | 37.14% | 50.73% | 6.59% | 3.72% | 1.82% |
| RETAIL COMMODITY SALES | 179,277,700 | 66,587,500 | 90,943,200 | 11,819,600 | 6,661,700 | 3,265,700 |
| PEAK DEMAND WEIGHTED FACTOR | | 2 | 1.75 | 1.5 | 1.25 | 1 |
| PEAK DEMAND WEIGHTED SALES | 321,647,825 | 133,175,000 | 159,150,600 | 17,729,400 | 8,327,125 | 3,265,700 |
| DEMAND PERCENTS | 100.00% | 41.40% | 49.48% | 5.51% | 2.59% | 1.02% |
| COMMODITY COSTS | \$251,621.05 | \$93,457.34 | \$127,641.21 | \$16,589.12 | \$9,349.87 | \$4,583.50 |
| DEMAND COSTS | \$612,256.89 | \$253,498.72 | \$302,943.29 | \$33,747.93 | \$15,850.69 | \$6,216.26 |
| CUSTOMER COSTS | \$163,568.63 | \$163,568.63 | | | | |
| TOTAL COSTS | \$1,027,446.56 | \$510,524.68 | \$430,584.51 | \$50,337.05 | \$25,200.56 | \$10,799.76 |
| DIVIDE BY BILLS/GALLONS | | 38,404 | 90,943,200 | 11,819,600 | 6,661,700 | 3,265,700 |
| CALCULATED RATES | | \$13.2935 | \$4.7347 | \$4.2588 | \$3.7829 | 3.3070 |
| | | | | | | |
| RECOMMENDED RATES | | FIRST 2,000 | NEXT 3,000 | NEXT 5,000 | NEXT 10,000 | Over 20,000 |
| | | \$13.30 | \$4.73 | \$4.26 | \$3.78 | \$3.30 |

Verification Billing Analysis for Unified Rates for: GRAVES COUNTY WATER DISTRICT

Test Period From: January - December 2010
PHASE 1

| Meter Size | Bills | Gallons Sold | Revenue |
|-------------------|--------------|---------------------|----------------|
| 5/8 inch | 38,144 | 174,891,600 | 1,007,711.15 |
| 1 inch | 172 | 2,719,400 | 12,832.88 |
| 2 inch | 76 | 1,666,700 | 9,709.62 |
| Wholesale | 12 | 8,259,300 | 20,813.44 |
| Totals | 38,404 | 187,537,000 | \$1,051,067.09 |

Meter Size: 5/8 inch

| | USAGE | BILLS | GALLONS | FIRST 20 | NEXT 80 | NEXT 100 | NEXT 300 | OVER 500 | TOTAL |
|--------|---------------|-------|-------------|-------------|------------|-------------|-------------|-------------|-------------|
| FIRST | 20 | 9741 | 93,407 | 93,407 | | | | | 93,407 |
| NEXT | 80 | 25924 | 1,217,246 | 518,480 | 698,766 | | | | 1,217,246 |
| NEXT | 100 | 1986 | 260,328 | 39,720 | 158,880 | 61,728 | | | 260,328 |
| NEXT | 300 | 425 | 118,679 | 8,500 | 34,000 | 42,500 | 33,679 | | 118,679 |
| OVER | 500 | 68 | 59,256 | 1,360 | 5,440 | 6,800 | 20,400 | 25,256 | 59,256 |
| TOTALS | Gallons x 100 | 38144 | 174,891,600 | 66,146,700 | 89,708,600 | 11,102,800 | 5,407,900 | 2,525,600 | 174,891,600 |

REVENUE BY RATE INCREMENT

| | | BILLS | GALLONS | RATE | REVENUE |
|-------|--------|-------|-------------|---------|----------------|
| FIRST | 2,000 | 38144 | 66,146,700 | \$13.30 | \$507,315.20 |
| NEXT | 8,000 | | 89,708,600 | 4.73 | 424,321.68 |
| NEXT | 10,000 | | 11,102,800 | 4.26 | 47,297.93 |
| NEXT | 30,000 | | 5,407,900 | 3.78 | 20,441.86 |
| OVER | 50,000 | | 2,525,600 | 3.30 | 8,334.48 |
| TOTAL | | 38144 | 174,891,600 | | \$1,007,711.15 |

Meter Size: 1 inch

| | USAGE | BILLS | GALLONS | FIRST 50 | NEXT 50 | NEXT 100 | NEXT 300 | OVER 500 | TOTAL |
|--------|---------------|-------|-----------|-------------|------------|-------------|-------------|-------------|-----------|
| FIRST | 50 | 79 | 1,915 | 1,915 | | | | | 1,915 |
| NEXT | 50 | 30 | 2,360 | 1,500 | 860 | | | | 2,360 |
| NEXT | 100 | 34 | 4,283 | 1,700 | 1,700 | 883 | | | 4,283 |
| NEXT | 300 | 7 | 2,309 | 350 | 350 | 700 | 909 | | 2,309 |
| OVER | 500 | 22 | 16,327 | 1,100 | 1,100 | 2,200 | 6,600 | 5,327 | 16,327 |
| TOTALS | Gallons x 100 | 172 | 2,719,400 | 656,500 | 401,000 | 378,300 | 750,900 | 532,700 | 2,719,400 |

REVENUE BY RATE INCREMENT

| | | BILLS | GALLONS | RATE | REVENUE |
|-------|--------|-------|-----------|---------|-------------|
| FIRST | 5,000 | 172 | 656,500 | \$27.49 | \$4,728.28 |
| NEXT | 5,000 | | 401,000 | 4.73 | 1,896.73 |
| NEXT | 10,000 | | 378,300 | 4.26 | 1,611.56 |
| NEXT | 30,000 | | 750,900 | 3.78 | 2,838.40 |
| OVER | 50,000 | | 532,700 | 3.30 | 1,757.91 |
| TOTAL | | 172 | 2,719,400 | | \$12,832.88 |

Meter Size: 2 inch

| | USAGE | BILLS | GALLONS | FIRST 200 | NEXT 300 | OVER 500 | TOTAL |
|--------|---------------|-------|-----------|--------------|-------------|-------------|-----------|
| FIRST | 200 | 50 | 4,364 | 4,364 | | | 4,364 |
| NEXT | 300 | 21 | 7,729 | 4,200 | 3,529 | | 7,729 |
| OVER | 500 | 5 | 4,574 | 1,000 | 1,500 | 2,074 | 4,574 |
| TOTALS | Gallons x 100 | 76 | 1,666,700 | 956,400 | 502,900 | 207,400 | 1,666,700 |

REVENUE BY RATE INCREMENT

| | | BILLS | GALLONS | RATE | REVENUE |
|-------|--------|-------|-----------|---------|------------|
| FIRST | 20,000 | 76 | 956,400 | \$93.74 | \$7,124.24 |
| NEXT | 30,000 | | 502,900 | 3.78 | 1,900.96 |
| OVER | 50,000 | | 207,400 | 3.30 | 684.42 |
| TOTAL | | 76 | 1,666,700 | | \$9,709.62 |

GRAVES COUNTY WATER DISTRICT
ALLOCATION OF OPERATION AND MAINTENANCE EXPENSE

PHASE 2

| | TOTAL | COMMODITY | DEMAND | CUSTOMER |
|-----------------------------------|-----------------|------------------|----------------|-----------------|
| Contractual services - Labor | 294,070 | | 294,070 | |
| Contractual Services- Adm. Fee | 111,830 | | | 111,830 |
| Purchased Water | 134,143 | 134,143 | | |
| Purchased Power | 61,739 | 61,739 | | |
| Chemicals | 61,802 | 61,802 | | |
| Bad Debt Expense | 10,613 | | | 10,613 |
| SUBTOTAL | 674,197 | 257,684 | 294,070 | 122,443 |
| LESS COMMODITY | -257,684 | | | |
| SUBTOTAL | 416,513 | | 294,070 | 122,443 |
| PERCENT | 100.00% | | 70.60% | 29.40% |
| Employee Salaries - Commissioners | 15,750 | | 11,120 | 4,630 |
| Amortization Expense | 1,475 | | 1,041 | 434 |
| Equipment Rental | 21,435 | | 15,134 | 6,301 |
| Contractual Services- Eng. | 26,833 | | 18,945 | 7,888 |
| Contractual Services - Materials | 14,397 | | 10,165 | 4,232 |
| Materials & Supplies | 29,115 | | 20,556 | 8,559 |
| Insurance General Liability | 11,056 | | 7,806 | 3,250 |
| Miscellaneous Expense | 9,667 | | 6,825 | 2,842 |
| TOTAL | 803,925 | 257,684 | 385,662 | 160,579 |

GRAVES COUNTY WATER DISTRICT
SUMMARY OF ALLOCATIONS

PHASE 2

| | TOTAL | COMMODITY | DEMAND | CUSTOMER |
|--|-----------------------|---------------------|---------------------|---------------------|
| Plant Percentages | 100.00% | | 91.53% | 8.47% |
| Debt Service Payments | \$119,264 | | \$109,168 | \$10,096 |
| Depreciation Percentages | 100.00% | | 91.21% | 8.79% |
| Total Depreciation | 257,765 | | 235,120 | 22,645 |
| Total Operation & Maintenance | 803,925 | \$257,684.00 | 385,662 | 160,579 |
| Total Revenue Requirement | 1,180,954.00 | 257,684.00 | 729,949.60 | 193,320.40 |
| <i>Less: Other Income</i> | | | | -6,899.00 |
| <i>Less: Other Operating Revenue</i> | | | | -55,913.00 |
| Revenue Requirement from retail water sales | \$1,118,142.00 | \$257,684.00 | \$729,949.60 | \$130,508.40 |

GRAVES COUNTY WATER DISTRICT
CALCULATION OF WHOLESALE RATE

PHASE 2

| Wholesale | Gallons Sold | Rate per 1,000 | Revenue |
|------------------------------|---------------------|---------------------------|----------------|
| | 8,259,300 | \$2.52 | \$20,813.44 |
| Revenue Requirement Increase | | 6.67% | |
| | 8,259,300 | \$2.69 | \$22,217.52 |

GRAVES COUNTY WATER DISTRICT
SUMMARY OF ALLOCATIONS FOR RETAIL CUSTOMERS

PHASE 2

| | TOTAL | COMMODITY | DEMAND | CUSTOMER |
|--|--|------------------|------------------|------------------|
| Plant Percentages | 100.00% | | 91.53% | 8.47% |
| Debt Service Payment | \$119,264 | | \$109,168 | \$10,096 |
| Depreciation Percentages | 100.00% | | 91.21% | 8.79% |
| Total Depreciation | 257,765 | | 235,120 | 22,645 |
| Total Operation & Maintenance | 803,925 | 257,684 | 385,662 | 160,579 |
| Total Revenue Requirement | 1,180,954 | 257,684 | 729,950 | 193,320 |
| | <i>Less: Other Income</i> | | | <i>-6,899</i> |
| | <i>Less: Other Operating Revenue</i> | | | <i>-55,913</i> |
| | <i>Less: Revenue from Wholesale Customer</i> | <i>-6,472</i> | <i>-15,746</i> | |
| Revenue Requirement from retail water sales | \$1,095,924 | \$251,212 | \$714,204 | \$130,508 |

NOTES:

Wholesale Customer Revenues allocated based on percentage of the total of the Commodity and Demand components.

GRAVES COUNTY WATER DISTRICT
CALCULATION OF RETAIL WATER RATES

PHASE 2

| | TOTAL | FIRST 2,000 | NEXT 8,000 | NEXT 10,000 | NEXT 30,000 | OVER 50,000 |
|-------------------------------|-----------------------|---------------------|---------------------|--------------------|--------------------|--------------------|
| FROM BILLING ANALYSIS: | | | | | | |
| COMMODITY PERCENTS | 100.00% | 37.14% | 50.73% | 6.59% | 3.72% | 1.82% |
| RETAIL COMMODITY SALES | 179,277,700 | 66,587,500 | 90,943,200 | 11,819,600 | 6,661,700 | 3,265,700 |
| PEAK DEMAND WEIGHTED FACTOR | | 2 | 1.75 | 1.5 | 1.25 | 1 |
| PEAK DEMAND WEIGHTED SALES | 321,647,825 | 133,175,000 | 159,150,600 | 17,729,400 | 8,327,125 | 3,265,700 |
| DEMAND PERCENTS | 100.00% | 41.40% | 49.48% | 5.51% | 2.59% | 1.02% |
| COMMODITY COSTS | \$251,212.04 | \$93,305.42 | \$127,433.73 | \$16,562.16 | \$9,334.68 | \$4,576.05 |
| DEMAND COSTS | \$714,204.04 | \$295,708.90 | \$353,386.51 | \$39,367.31 | \$18,489.99 | \$7,251.34 |
| CUSTOMER COSTS | \$130,508.40 | \$130,508.40 | | | | |
| TOTAL COSTS | \$1,095,924.48 | \$519,522.72 | \$480,820.24 | \$55,929.47 | \$27,824.67 | \$11,827.38 |
| DIVIDE BY BILLS/GALLONS | | 38,404 | 90,943,200 | 11,819,600 | 6,661,700 | 3,265,700 |
| CALCULATED RATES | | \$13.5278 | \$5.2870 | \$4.7319 | \$4.1768 | 3.6217 |
| RECOMMENDED RATES | | FIRST 2,000 | NEXT 3,000 | NEXT 5,000 | NEXT 10,000 | Over 20,000 |
| | | \$13.53 | \$5.28 | \$4.73 | \$4.18 | \$3.62 |

Verification Billing Analysis for: GRAVES COUNTY WATER DISTRICT
Test Period From: January - December 2010

PHASE 2

| Meter Size | Bills | Gallons Sold | Revenue |
|-------------------|--------------|---------------------|----------------|
| 5/8 inch | 38,144 | 174,891,600 | 1,074,013.67 |
| 1 inch | 172 | 2,719,400 | 14,025.42 |
| 2 inch | 76 | 1,666,700 | 10,686.23 |
| Wholesale | 12 | 8,259,300 | 22,217.52 |
| Totals | 38,404 | 187,537,000 | \$1,120,942.83 |

GRAVES COUNTY WATER DISTRICT

Meter Size: 5/8 inch

| | USAGE | BILLS | GALLONS | FIRST 20 | NEXT 80 | NEXT 100 | NEXT 300 | NEXT 500 | TOTAL |
|--------|---------------|-------|-------------|-------------|------------|-------------|-------------|-------------|-------------|
| FIRST | 20 | 9741 | 93,407 | 93,407 | | | | | 93,407 |
| NEXT | 80 | 25924 | 1,217,246 | 518,480 | 698,766 | | | | 1,217,246 |
| NEXT | 100 | 1986 | 260,328 | 39,720 | 158,880 | 61,728 | | | 260,328 |
| NEXT | 300 | 425 | 118,679 | 8,500 | 34,000 | 42,500 | 33,679 | | 118,679 |
| OVER | 500 | 68 | 59,256 | 1,360 | 5,440 | 6,800 | 20,400 | 25,256 | 59,256 |
| TOTALS | Gallons x 100 | 38144 | 174,891,600 | 66,146,700 | 89,708,600 | 11,102,800 | 5,407,900 | 2,525,600 | 174,891,600 |

REVENUE BY RATE INCREMENT

| | | BILLS | GALLONS | RATE | REVENUE |
|-------|--------|-------|-------------|---------|----------------|
| FIRST | 2,000 | 38144 | 66,146,700 | \$13.53 | \$516,088.32 |
| NEXT | 8,000 | | 89,708,600 | 5.28 | 473,661.41 |
| NEXT | 10,000 | | 11,102,800 | 4.73 | 52,516.24 |
| NEXT | 30,000 | | 5,407,900 | 4.18 | 22,605.02 |
| OVER | 50,000 | | 2,525,600 | 3.62 | 9,142.67 |
| TOTAL | | 38144 | 174,891,600 | | \$1,074,013.67 |

Meter Size: 1 inch

| | USAGE | BILLS | GALLONS | FIRST 50 | NEXT 50 | NEXT 100 | NEXT 300 | OVER 500 | TOTAL |
|--------|---------------|-------|-----------|-------------|------------|-------------|-------------|-------------|-----------|
| FIRST | 50 | 79 | 1,915 | 1,915 | | | | | 1,915 |
| NEXT | 50 | 30 | 2,360 | 1,500 | 860 | | | | 2,360 |
| NEXT | 100 | 34 | 4,283 | 1,700 | 1,700 | 883 | | | 4,283 |
| NEXT | 300 | 7 | 2,309 | 350 | 350 | 700 | 909 | | 2,309 |
| OVER | 500 | 22 | 16,327 | 1,100 | 1,100 | 2,200 | 6,600 | 5,327 | 16,327 |
| TOTALS | Gallons x 100 | 172 | 2,719,400 | 656,500 | 401,000 | 378,300 | 750,900 | 532,700 | 2,719,400 |

REVENUE BY RATE INCREMENT

| | | BILLS | GALLONS | RATE | REVENUE |
|-------|--------|-------|-----------|---------|-------------|
| FIRST | 5,000 | 172 | 656,500 | \$29.37 | \$5,051.64 |
| NEXT | 5,000 | | 401,000 | 5.28 | 2,117.28 |
| NEXT | 10,000 | | 378,300 | 4.73 | 1,789.36 |
| NEXT | 30,000 | | 750,900 | 4.18 | 3,138.76 |
| OVER | 50,000 | | 532,700 | 3.62 | 1,928.37 |
| TOTAL | | 172 | 2,719,400 | | \$14,025.42 |

Meter Size: 2 inch

| | USAGE | BILLS | GALLONS | FIRST 200 | NEXT 300 | OVER 500 | TOTAL |
|-------|-------|-------|-----------|--------------|-------------|-------------|-----------|
| FIRST | 200 | 50 | 4,364 | 4,364 | | | 4,364 |
| NEXT | 300 | 21 | 7,729 | 4,200 | 3,529 | | 7,729 |
| OVER | 500 | 5 | 4,574 | 1,000 | 1,500 | 2,074 | 4,574 |
| | | 76 | 1,666,700 | 956,400 | 502,900 | 207,400 | 1,666,700 |

REVENUE BY RATE INCREMENT

| | | BILLS | GALLONS | RATE | REVENUE |
|-------|--------|-------|-----------|----------|-------------|
| FIRST | 20,000 | 76 | 956,400 | \$103.07 | \$7,833.32 |
| NEXT | 30,000 | | 502,900 | 4.18 | 2,102.12 |
| OVER | 50,000 | | 207,400 | 3.62 | 750.79 |
| TOTAL | | 76 | 1,666,700 | | \$10,686.23 |

ATTACHMENT D
STAFF REPORT, CASE NO. 2012-00278
STAFF'S RECOMMENDED RATES

Monthly Rates - Phase I:

5/8" x 3/4" Meter

| | | |
|-------|----------------|------------------------|
| First | 2,000 Gallons | \$13.30 Minimum Bill |
| Next | 8,000 Gallons | 4.73 per 1,000 Gallons |
| Next | 10,000 Gallons | 4.26 per 1,000 Gallons |
| Next | 30,000 Gallons | 3.78 per 1,000 Gallons |
| Over | 50,000 Gallons | 3.30 per 1,000 Gallons |

1" Meter

| | | |
|-------|----------------|------------------------|
| First | 5,000 Gallons | \$27.49 Minimum Bill |
| Next | 5,000 Gallons | 4.73 per 1,000 Gallons |
| Next | 10,000 Gallons | 4.26 per 1,000 Gallons |
| Next | 30,000 Gallons | 3.78 per 1,000 Gallons |
| Over | 50,000 Gallons | 3.30 per 1,000 Gallons |

2" Meter

| | | |
|-------|----------------|------------------------|
| First | 20,000 Gallons | \$93.74 Minimum Bill |
| Next | 30,000 Gallons | 3.78 per 1,000 Gallons |
| Over | 50,000 Gallons | 3.30 per 1,000 Gallons |

WHOLESALE WATER RATE: \$2.52 per 1,000 Gallons

Monthly Rates - Phase II:

5/8" x 3/4" Meter

| | | |
|-------|----------------|------------------------|
| First | 2,000 Gallons | \$13.53 Minimum Bill |
| Next | 8,000 Gallons | 5.28 per 1,000 Gallons |
| Next | 10,000 Gallons | 4.73 per 1,000 Gallons |
| Next | 30,000 Gallons | 4.18 per 1,000 Gallons |
| Over | 50,000 Gallons | 3.62 per 1,000 Gallons |

1" Meter

| | | |
|-------|----------------|------------------------|
| First | 5,000 Gallons | \$29.37 Minimum Bill |
| Next | 5,000 Gallons | 5.28 per 1,000 Gallons |
| Next | 10,000 Gallons | 4.73 per 1,000 Gallons |
| Next | 30,000 Gallons | 4.18 per 1,000 Gallons |
| Over | 50,000 Gallons | 3.62 per 1,000 Gallons |

2" Meter

| | | |
|-------|----------------|------------------------|
| First | 20,000 Gallons | \$103.07 Minimum Bill |
| Next | 30,000 Gallons | 4.18 per 1,000 Gallons |
| Over | 50,000 Gallons | 3.62 per 1,000 Gallons |

WHOLESALE WATER RATE:

\$2.69 per 1,000 Gallons

Johnny Dowdy
Chair
Graves County Water District
P. O. Box 329
Mayfield, KY 42066